Carlos - Harris
Leach - Fault + Czar
Claims

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UU4958

GRAVITY AND E M SURVEY

LEACH - FAULT - CZAR CLAIMS

SUMMARY

This report presents the results of the gravity and EM survey work over the Leach-Fault-Czar claims, Pelly Banks area, Yukon Territory. The EM work indicates that the rock units underlying the survey area are highly conductive which implies graphite ± sulphides. The gravity outlined four small amplitude gravity high residuals which form an arcuate feature around the central zone of high conductivity. The correlation of gravity, EM and Zn geochemical results indicates that diamond drilling is warranted. Six drill holes are recommended with co-ordinates and depths given in this report.

Respectfully submitted,

Charles A. Ager

Charles A. Ager, PhD, PEng
Geophysicist

July 25, 1978

LOCATION, DATE OF WORK, CREW

Location: Leach 17-18, Leach 57-63, Czar 3-8 Claims

Watson Lake Mining District

Pelly Banks Area, Yukon Territory

NTS 105G/14

61°54.2' N Lat by 131°20' W Long

Date of Work:

Field Work; April 1-April 8, 1978
June 5 - June 8, 1978

Office Work; July 1 -July 25,1978

Crew: J.G. Ager, BSc, party chief (gravity)

R.J. Englund, BSc, party chief (CEM)

A. Dryver, geophysical operator

J. Sheldon, field assistant

L. Grant, field assistant

M. Faucher, field assistant

G. Ager, cook

C.A.Ager, PhD,PEng, data interpreter

INTRODUCTION

At the request of Mr Sandy MacLean, DuPont of Canada Exploration Ltd, an exploratory gravity and EM survey were conducted over a part of the Leach-Fault-Czar Claims, Pelly Banks area, Yukon Territory. The intent of the geophysical work was to delineate areas of excess mass and conductivity which may indicate the presence of massive Pb-Zn mineralization within the underlying phyllitic (?) units. The grid was centered over a previously discovered Zn soil geochemical anomaly (Ikona and Stammers, 1977).

The property is situated some 13 kilometers (8 miles) northwest of Pelly Banks, on the north side of the Pelly River, Yukon Territory (Figures 1 and 2). The geographic co-ordinates of the center of the survey area are 61°54.2' N Latitude by 131°20' W Longitude. The grid is located on the southern slope of a small hill at elevation ranging between 3100 - 3400 feet (945-1035 meters). Access is by winter road from the Campbell Highway on the west side of Big Campbell Creek, or by helicopter from Ross River, Y.T.

INSTRUMENTATION & SURVEY PROCEDURE

Gravity observations were made using a LaCoste & Romberg Model G gravity meter (serial number G209) with reading accuracy of ±0.01 mgals. All gravity readings were within the dial range 5100-5200 for which the dial constant is 1.06062 mgals/division. Instrument and diurnal drift were accounted for by tying into known base stations within three hour intervals.

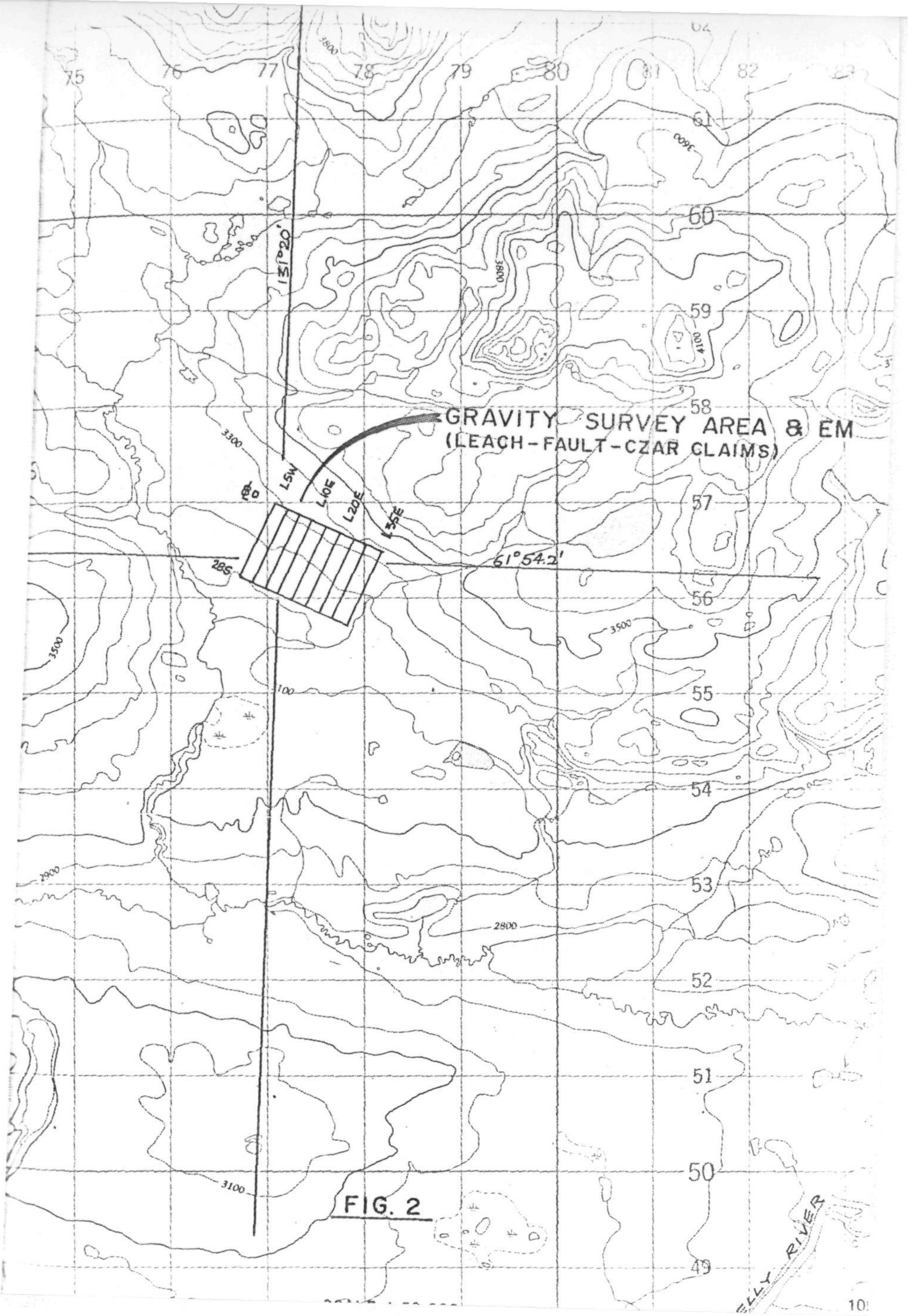

GRAVITY SURVEY AREA & EM
(LEACH-FAULT-CZAR CLAIMS)
131°20'
61°54.2'
L5W
L10E
L20E
L35E
28S
3300
3500
3800
3600
4100
2900
2800
3100
75
76
77
78
79
80
81
82
61
60
59
58
57
56
55
54
53
52
51
50
49
RIVER

FIG. 2

Gravity stations were located at 30 and 60 meter (100 and 200 ft) intervals along lines spaced 150 meters (500 ft) apart as shown on Figure 3. Elevations were measured to the top of pickets at ground level using an electronic level developed by Ager & Associates Ltd. Relative elevations are considered accurate to ±0.03 meters (±0.10 ft) between stations. The elevation reference for the survey was station L35E+30S. It was assigned the value 3160.00 ft (963.16 meters) as picked from 1:50,000 NTS map sheet 105G/14. The elevations so determin for the survey grid are relative to this base value (Figure 3).

The gravity survey is referenced to a permanent base station (GB78-2) located on the Pelly Banks Syndicate ground some 6 miles east-southeast of the property. The station is marked by a four foot high post located on the east side of the access road on the west bank of the Pelly River at Slate-Reno grid co-ordinates BL0+550E. The temporary base used for the Leach-Fault-Czar grid is the base of the claim post at station L35E+30S. The absolute value of gravity for the permanent base (GB78-2) was determined by ex-centre tyes to the National Network station at Whitehorse, Y.T. A complete listing of the data is given in Appendix A.

An electromagnetic (EM) survey was conducted over the same grid using the Crone shootback system in the horizontal loop mode of operation. Coil spacing was 400 feet (120 meters) with station intervals of 30-60 meters. The medium frequency of 1830 hz was used for the whole grid. Detailing of some anomalies were done

using high (5010 hz) and low (390 hz) frequencies and coil separations of 200, 400 and 600 feet (60, 120 and 180 meters). The resultant dip angles were determined by summing the shootback responses with vertical being 0°. (Refer to Appendix B for a listing of results).

DATA REDUCTION

As is well known, the observed gravity values (g_O) contain much information of non-interest in mining exploration. Simply stated, the problem is to separate the effects of the earth (g_E) from the observed gravity field. The map of interest, the Complete Bouguer Gravity Map (Δg_{CB}) is defined as follows:

$$\Delta g_{CB} = g_O - g_E \qquad (1)$$

where

$$g_E = g_L + g_{FA} + g_{BS} + g_T \qquad (2)$$

g_L: Latitude effect

g_{FA}: Free Air effect

g_{BS}: Bouguer Slab effect

g_T: Terrain effect

Using standard procedures, the Complete Bouguer Gravity Map (Figure 4) was calculated from equations 1 and 2 above. Terrain effects were calculated to a radius of 1800 feet (550 meters) about each station using computer techniques of Ager & Associates Ltd.

Bouguer slab and terrain densities were taken to be 2.80 g/cc which is the average density for phyllitic rocks within the area of the survey. The complete Bouguer gravity values are all relative to station L35E+30S which was assigned an arbitrary value of 257.86 mgals (Figure 4).

Computer and graphical techniques were used to generate the residual gravity map (Figure 5). It is this map which is most indicative of local density changes within the underlying rocks.

The CEM data is presented in profile form on Figure 6 and given in contour format on Figure 7. No additional processing was done to this data and it is interpreted directly.

INTERPRETATION OF RESULTS

The intent of the survey work was to outline gravity high anomalies within conductive environments. Inspection of the gravity and EM maps indicate the following:

1) The regional gravity field strikes east-west and has a gradient of about +0.50 mgals/1000 feet north. This is taken to indicate the general strike of the geological units underlying the survey area. In the northwestern part of the grid, the fabric of the units appears to change to a more northerly trend.
2) There are four gravity high residuals ranging in amplitude from +0.10 to +0.30 mgals. These anomalies form an arcuate trend about a zone of gravity low features of amplitudes to -0.30 mgals within the central area of the survey grid (Figure 5).

3) The EM maps indicate that essentially the whole grid overlies a very conductive host rock unit as evidenced by the very large negative dip angles of -60 to -140 degrees. It is difficult to put much importance on the two zones of apparently less conductive rock centered at about 2S on lines 10E and 30E. These features appear to be caused by a less conductive rock unit (eg. a dyke) which is dipping to the north. However, within such a highly conductive environment, there are cases where features similar to these have been caused by a near vertical high conductive source such as massive sulphides.

4) By comparing the gravity and CEM results with the Zn geochemical information further interpretations can be made (Figure 8).* Here we observe that a gravity low region coincides fairly well with the high Zn geochemical data and with the very low (-100°) dip angles. This indicates that the common source rock is highly conductive, is less dense than phyllites and is high in zinc. The obvious candidate is a graphitic rock unit.

5) The gravity high residuals peripherial to the 'graphitic unit' are most likely caused by a heavier rock unit overlaying the more graphitic unit. Excess masses and total tonnages associated with these features are summarized in the following table:

* Implication: Graphite phyllite has density $\leq$ 2.8 or at any rate less than surrounding phyllite.

Anomaly Name	Co-ordinates of center	Excess Mass	Total Tonnage 3.00 g/cc rock	Total Tonnage 4.00 g/cc rock
A	L15E+23S	0.676 mt	9.46 mt	1.55 mt
B	L0+10S	0.425 mt	5.95 mt	0.98 mt
C	L35E+5S	0.200 mt	2.80 mt	0.46 mt
D	L5E+20S	0.170 mt	2.40 mt	0.39 mt

note: mt = million tons

6) Depths to center of mass for these anomalies are hard to determine due to the lack of ground truth information on the densities of the surface rocks. However, each feature appears to be within 500 feet (160 meters) of the surface.

RECOMMENDATIONS & CONCLUSIONS

Based strictly on the geophysical and geochemical data, six vertical drill holes to a minimum depth of 500 feet are recommended at the following co-ordinates for the reasons given:

Drill Hole No.	Co-ordinates	Reason
1	L20E+8S	-150° CEM conductor Zn geochem high
2	L20E+12S	Zn geochem high -100° CEM conductor
3	L20E+18S	Zn geochem high -100° CEM conductor
4	L15E+23.5S	+0.30 mgal gravity high -115° CEM conductor
5	L0+10S	+0.20 mgal gravity high -100° CEM conductor
6	L30E+2S	-20° CEM conductor flanks of +0.20 gravity high

The above holes, when drilled, will most certainly indicate the economic potential of the area surveyed. It should be kept in mind as well that the gravity high features are open to the west and to the east where further work may be warranted pending the results of the drilling.

Respectfully submitted,

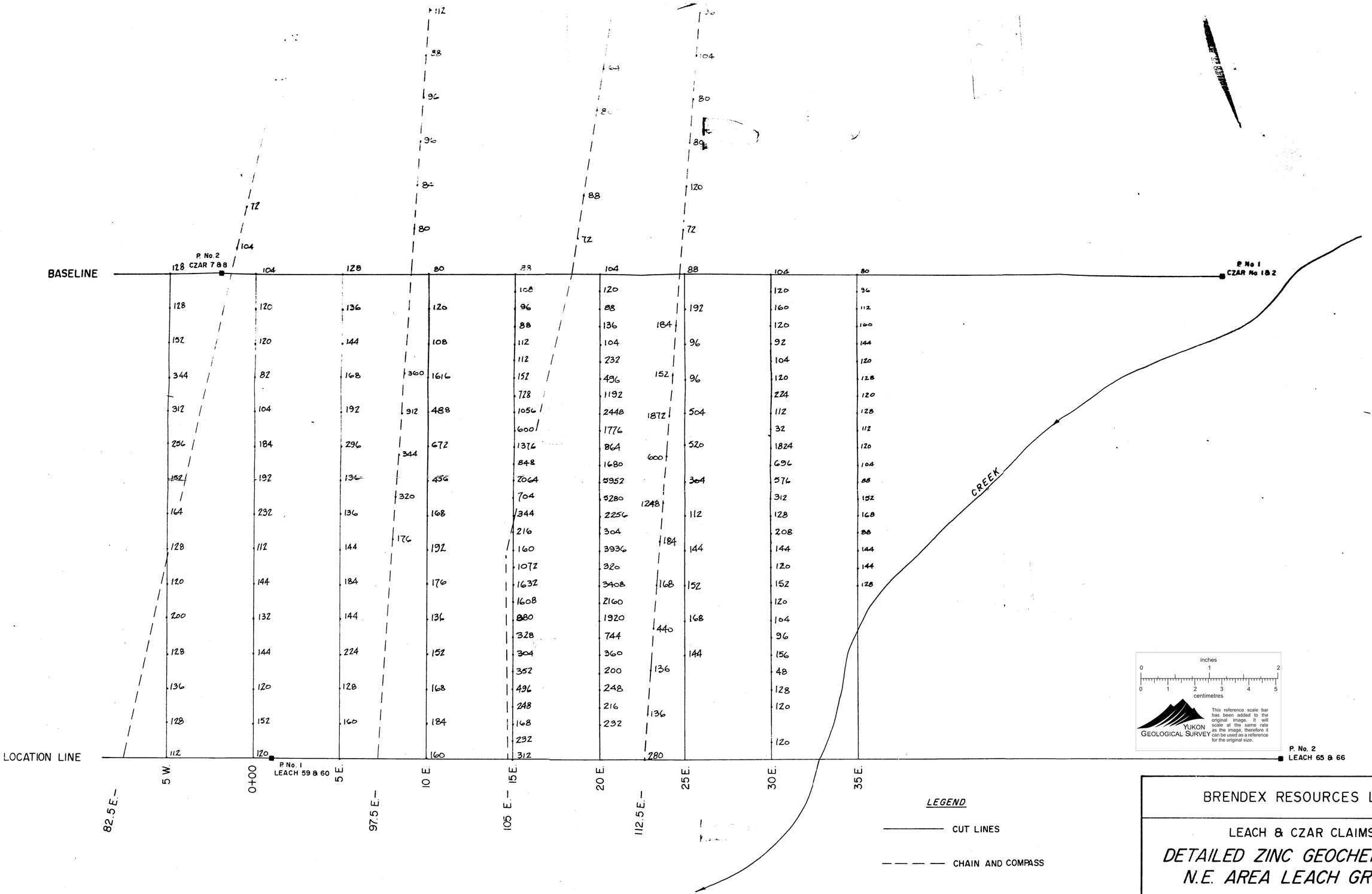
Charles A. Ager, PhD, PEng

July 25, 1978

Geophysicist

REFERENCES

Ikona, C.K., Stammers, M. (1977). Geological and geochemical report on the leach-fault mineral claims for Brendex Resources Ltd, October 1977.



BRENDEX RESOURCES LTD.

LEACH & CZAR CLAIMS

DETAILED ZINC GEOCHEMISTRY
N.E. AREA LEACH GROUP

SCALE

FEET 400 200 0 400 800 FEET

PAMICON DEVELOPMENTS LTD | FIGURE 5